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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,825	10/20/2003	Koichi Tsuchiya	2003_1427A	9913

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EXAMINER	
WEINSTEIN, LEONARD J	
ART UNIT	PAPER NUMBER
3746	
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11/13/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/687,825	TSUCHIYA ET AL.	
	Examiner	Art Unit	
	LEONARD J. WEINSTEIN	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 September 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 13-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 13-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 9, 2008 has been entered.

2. The examiner acknowledges the amendments to claims 1 and 13.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. US 7,100,743 in view of Goodnight US 6,457,561, further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420. In the embodiment shown

in figure 11, Park teaches all the limitations of the invention as claimed for a reciprocating compress including: **[claim 1]** a motor unit 22, a compressing unit 30 disposed over said motor unit 22 and including a compression chamber 32, a piston 31 disposed for reciprocation in said compression chamber, a crankshaft 200 configured to convert rotating action of said motor unit 22 into reciprocating action of said piston 31, an enclosed container 11 accommodating said motor unit 22 and said compressing unit 30 and having a lubricant oil portion, figure 1, configured to pool lubricant oil, wherein a crankshaft 200 includes a centrifugal pump 240 disposed at a lower section, figure 12, of said crankshaft 200 and opening into the lubricant oil portion of said container 11, a pair of spiral pumps 242b, functionally independent (col. 14 ll. 14-19), disposed at a middle section 212 of said crankshaft 200, fluidically connected, via 241 and 246, with said centrifugal pump 240, and having leading grooves, elements 243a and b, running in opposite directions, as the two grooves are helical (col. 5 ll. 56-59) and have diverging paths from one another as can be seen in figure 11, wherein said spiral pumps 242b respectively have upper ends, top of elements 242b, and lower ends, portion of elements 242b in direct communication with elements 243a and b, and said centrifugal pump 240 is fluidically connected with said spiral pumps 242b only at said lower ends thereof via one communicating section 242a, and a pair of vertical holes elements 244a and b, functionally independent (col. 14 ll. 14-19), are provided at an upper section, area of element 200 defined above element 231, of said crankshaft 200, said vertical holes, elements 244a and 244b, opening into said container 11 and fluidically connected with said spiral pumps 242b, respectively, a throttle section 245

disposed in said lubricant oil pooling portion, figure 1, for allowing the lubricant oil pooled in said container 11 to be drawn into said centrifugal pump 240, and a hollow cylinder 241 extending upward from a lower end of said crankshaft 200, figure 11.

Park fails to teach the following limitations for a compressor that are taught by Goodnight including: **[claim 1]** wherein said centrifugal pump includes a throttle section provided with a bottom wall, annular surface on the bottom of element 32 surrounding element 36, with a suction hole 36, disposed in said lubricant oil pooling portion 22, for allowing the lubricant oil 24 pooled in said container 38 to be drawn into a centrifugal pump, as defined by elements 26, 28, 34, and 48, said bottom wall, annular surface on the bottom of element 32 surrounding element 32, being perpendicular to said rotation axis of said crankshaft 32; **[claim 27]** a throttle section, as defined by elements 26 and 36, constitutes a lower portion of a cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, that is secured to a lower end of a crankshaft 32, and said cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, comprising a cylinder, body of shaft section defining surrounding and defining elements 26 and 36 being cylindrical, having a hollow cylindrical interior, as defined by the spaces designated as elements 26 and 36, connecting with said hollow cylinder extending upward from the lower end of said crankshaft 32, as shown in figure 14, said hollow cylindrical interior of the cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, being terminated, as a bottom end (bottom forming annular surface surrounding element 36 defining an opening) thereof, by said bottom wall, annular surface on bottom end of element 36 surrounding element 36 and facing a pool of oil,

having said suction hole 36 formed therein. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a reciprocating compressor having a rotating crankshaft pooling oil from an oil pool, as taught by Park, with a throttle section having bottom wall with a suction hole, as taught by Goodnight, in order to pick up oil from an oil pool and deliver the oil to a groove as taught by both Park and Goodnight as a result of a centrifugal force (Goodnight - col. 7 ll. 60-col. 8 ll. 6).

A combination of Park and Goodnight fails to teach the following limitations that are taught by Nobuo including a vertical hole 6e respectively having upper ends (top of element 6) and lower ends 6i, said upper ends (top of element 6) of said vertical hole 6e opening into a container 2 and-through an uppermost end surface of a crankshaft 6, said lower ends 6i of said vertical hole 6e being connected to a spiral pump (6a, 6g, 6h) to fluidically connected connect said vertical hole 6e with said spiral pumps (6a, 6g, 6h). Khoo teaches an outflow orifice 75 that extend through the top end of a crankshaft in order to disperse lubricating oil to compressor components near the top of a crank shaft. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide crankshaft pooling oil from an oil pool for a compressor, as taught by Park, modified to have a throttle section, as taught by Goodnight, further modified to have vertical holes with a lower section in connection with spiral pumps and a upper section opening on the top surface of a crankshaft, as taught by Nabuo in order to disperse lubricating oil to a top section of the crankshaft and compressor components in the area of the upper surface of the crankshaft (Khoo - col. 3 ll. 61-65).

4. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as obvious over Park et al. US 7,100,743 in view of Goodnight US 6,457,561, further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420 as applied to claim 1 above, and further in view of Andrione et al. 4,493,226. A combination of Park, Goodnight, and Nobuo, teach all the limitations of the invention as discussed above but combination of the references would fail to teach the limitations as taught by Andrione '226 including: **[claim 3]** a vent hole 56 provided at an upper section, figure 4, of a centrifugal pump, 20 and 30, opening into a container 10; **[claim 8]** and a vent hole 56 opening through an upper surface, 50 of 22, of the centrifugal pump 18, wherein the upper surface, 50 of 22, faces upward in an axial direction, figure 4, of a crankshaft 18. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the vent hole a suction chamber of within a crankshaft of a compressor in order to allow any gas within the oil traversing through a suction path, to be removed outside a zone of a crankshaft (Andrione – col. 3 ll. 2-4).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as obvious over Park et al. US 7,100,743 in view of Goodnight 6,457,561 further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420, as applied to claim 1 above, and further in view of Andrione et al. US 4,386,859. A combination of Park, Goodnight, and Nobuo teaches all the limitations of the invention in the embodiment of figure 11 as discussed above and Park further teaches the limitations including an eccentric shaft 220, a sub-shaft section 230 and a main-shaft section, elements 211 and 212, which sandwich-vertically, figure 1, the eccentric shaft 220; and a sub-bearing 12 and a main-bearing,

section of element 22 shown in figure 2. The following limitations as disclosed and not explicitly claimed are taught by Andrione '859 wherein a sub-bearing, elements 46 and 36, and a main-bearing, bearing surface defined by element disposed between elements 20 and 30 and partially fitting within the inner circumference of element 22, are disposed on opposite sides of an eccentric 32. Therefore Andrione '859 clearly teaches the limitations including: a compressing unit 18 having a sub-bearing, elements 36 and 46, and a main-bearing, bearing surface defined by element disposed between elements 20 and 30 and partially fitting within the inner circumference of element 22, both of which are formed to cross with an axis of said compression chamber 12 at substantially right angles for supporting a sub-shaft section 28 and said main-shaft section 34. Further Andrione '859 also teaches a thrust bearing 50 over a sub-shaft section 28 (Andrione '859 – col. 2 ll. 62-66). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a sub-bearing for a sub-shaft of a crankshaft of a compressor between a compression unit and a flat radial fixed surface of a thrust bearing to ensure no sliding contact between cast iron surfaces during an operation of a compressor (Andrione '859 col. 1 ll. 60-66).

6. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. US 7,100,743 in view of Goodnight US 6,457,561 further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420, still further in view of Andrione et al. US 4,386,859 as applied to claim 4 above and further in view of Andrione 4,493,226 as applied to claim 1 above. A combination of Park, Goodnight, Nobuo, and Andrione '859 teaches all the limitations as discussed and further in the

embodiment of figure 11, Park teaches **[claims 5]** a pair of functionally independent grooves, elements 243a and b running in opposite directions, fluidically connected to two vertical holes, elements 244a and b, said grooves, elements 243a and 243b serve to pump lubricating oil upward; **[claim 9]** and grooves, elements 243a and 243b, that lubricate a thrust bearing 41 provided over a sub-shaft section 230, via paths, elements 248, and vertical holes 244a and b that pump the lubricating oil upwardly to supply oil to the thrust bearing 41 that is provided over a sub-shaft section 230. A combination of Park, Goodnight, and Andrione '859 fails to teach the limitations that are taught by Andrione '226 including: **[claim 5]** a helical groove 54 provided on an outer wall of a sub-shaft section 20, having a leading groove fluidically connected with a vertical hole 52. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a helical groove on an upper sub-shaft of a crankshaft that communicated with vertical holes permitting a flow of oil in order to provide a stable supply of oil to a sub-shaft and bearing in a regular and reverse direction of rotation intended to change the compression capacity of a compressor (Park col. 2 ll. 40-43 and col. 4 ll. 23-27).

7. Claims 6-7 rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. US 7,100,743 in view of Goodnight US 6,457,561 further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420. It is well known within the art to use a plurality of electric motors for use as the motor component of a reciprocating compressor. Park does nothing to change this well known practice and therefore it

would have been obvious to one having ordinary skill in the art to provide a three-phase induction motor or a single-phase resistant-start induction motor.

8. Claims 13 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. US 7,100,743 in view of Andrione 4,493,226, further view of Goodnight 6,457,561, still further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420. Park teaches the limitations of the invention in the embodiment shown in figure 11, as discussed above and further teaches the following: **[claim 13]** a compressing unit 30 including a cylinder block 34, a compression chamber 32 formed in said cylinder block 34, a lower main bearing 22 provided about a main section 211 of a crankshaft 300 rotatable about a rotation axis to rotatably support the crankshaft 200 at the main section, an upper sub bearing 12 provided about a sub-section 212 of the crankshaft 200 to rotatably support the crankshaft 200 at the sub-shaft section 230 thereof, a main section, 211 and 212, of the crankshaft 200 having a fluid suction path 241 formed therein and opening into a lubricant oil pooling portion, figure 1, of a container 11, a main section, 211 and 212, of having a pair of first spiral pump grooves, elements 243a and b, formed in an outer surface, fluidically connected to the fluid suction path 241, and being functionally independent one another (col. 14 ll. 62-67), the eccentric section 220 of the crankshaft 200 has a pair of vertical holes 244a and b formed therein, the vertical holes, elements 244a and b, being fluidically connected to the first spiral pump grooves, 243a and b, and being functionally independent of one another (col. 17 ll. 62-67), wherein said spiral pumps 242b respectively have upper ends, top of elements 242b, and lower ends, portion of elements 242b in direct

communication with elements 243a and b, and said centrifugal pump 240 is fluidically connected with said spiral pumps 242b only at said lower ends thereof via one communicating section 242a.

Park fails to teach the following limitations that are taught by Andrione '226 including: (claim 13) a sub-shaft section 20 of said crankshaft 18 having a spiral pump groove 54 formed in an outer surface of a sub-shaft section 20 and connected to a vertical hole 52. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the spiral pump groove of Andrione '226 to the vertical holes of Park to provide a pair of functionally independent spiral pump grooves arranged to feed lubricant oil from one of a first spiral pump groove to a second one of said second spiral pump grooves in order to provide a stable supply to lubricate a thrust bearing (Andrione '226 col. 4 ll. 60-66) in both a regular and reverse direction of rotation intended to change the compression capacity of a compressor (Park col. 2 ll. 40-43 and col. 4 ll. 23-27).

A combination of Park and Andrione '226 fails to teach the following limitations for a compressor that are Park fails to teach the limitations that are taught by Goodnight including wherein said centrifugal pump includes a throttle section provided with a bottom wall, annular surface on the bottom of element 32 surrounding element 36, with a suction hole 36, disposed in said lubricant oil pooling portion 22, for allowing the lubricant oil 24 pooled in said container 38 to be drawn into a centrifugal pump, as defined by elements 26, 28, 34, and 48, said bottom wall, annular surface on the bottom of element 32 surrounding element 32, being perpendicular to said rotation axis of said

crankshaft 32; **[claim 25]** a suction hole 36 opens directly between said lubricant oil pooling portion 22 and an interior of said throttle section, as defined by elements 26 and 36, as shown in figure 2; **[claim 26]** a throttle section, as defined by elements 26 and 36, constitutes a lower portion of a cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, that is secured to a lower end of a crankshaft 32, and said cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, comprising a cylinder, body of shaft section defining surrounding and defining elements 26 and 36 being cylindrical, having a hollow cylindrical interior, as defined by the spaces designated as elements 26 and 36, connecting with said hollow cylinder extending upward from the lower end of said crankshaft 32, as shown in figure 14, said hollow cylindrical interior of the cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, being terminated, as a bottom end (bottom forming annular surface surrounding element 36 defining an opening) thereof, by said bottom wall, annular surface on bottom end of element 36 surrounding element 36 and facing a pool of oil, having said suction hole 36 formed therein. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a reciprocating compressor having a rotating crankshaft pooling oil from an oil pool as taught by Park with a throttle section having bottom wall with a suction hole as taught by Goodnight in order to pick up oil from an oil pool and deliver the oil to a groove as taught by both Park and Goodnight as a result of a centrifugal force (Goodnight - col. 7 ll. 60-col. 8 ll. 6).

A combination of Park, Andrione, and Goodnight, fails to teach the following limitations that are taught by Nobuo including a vertical hole 6e respectively having

upper ends (top of element 6) and lower ends 6i, said upper ends (top of element 6) of said vertical hole 6e opening into a container 2 and-through an uppermost end surface of a crankshaft 6, said lower ends 6i of said vertical hole 6e being connected to a spiral pump (6a, 6g, 6h) to fluidically connected connect said vertical hole 6e with said spiral pumps (6a, 6g, 6h). Khoo teaches an outflow orifice 75 that extend through the top end of a crankshaft in order to disperse lubricating oil to compressor components near the top of a crank shaft. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide crankshaft pooling oil from an oil pool for a compressor, as taught by Park, modified to have a spiral pump on a sub-shaft as taught by Andrione '226, further modified to have a throttle section, as taught by Goodnight, further modified to have vertical holes with a lower section in connection with spiral pumps and a upper section opening on the top surface of a crankshaft, as taught by Nabuo in order to disperse lubricating oil to a top section of the crankshaft and compressor components in the area of the upper surface of the crankshaft (Khoo - col. 3 ll. 61-65).

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. US 7,100,743 in view of Andrione 4,493,226, further view of Goodnight 6,457,561, still further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420, as applied to 13 above, further in view of Andrione et al. 4,386,859. A combination of Park, Andrione '226, Goodnight, and Nobuo would fail to explicitly teach the following limitations for a compressor that are taught by Andrione '859 wherein a sub-bearing, elements 46 and 36, and a main-bearing, bearing surface defined by

element disposed between elements 20 and 30 and partially fitting within the inner circumference of element 22, are disposed on opposite sides of an eccentric 32. Therefore Andrione '859 clearly teaches the limitations including: a compressing unit 18 having a sub-bearing, elements 36 and 46, and a main-bearing, bearing surface defined by element disposed between elements 20 and 30 and partially fitting within the inner circumference of element 22, both of which are formed to cross with an axis of said compression chamber 12 at substantially right angles for supporting a sub-shaft section 28 and said main-shaft section 34. Further Andrione '859 also teaches a thrust bearing 50 over a sub-shaft section 28 (Andrione '859 – col. 2 ll. 62-66). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a sub-bearing for a sub-shaft of a crankshaft of a compressor between a compression unit and a flat radial fixed surface of a thrust bearing to ensure no sliding contact between cast iron surfaces during an operation of a compressor (Andrione '859 col. 1 ll. 60-66).

10. Claims 15 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. US 7,100,743 in view of Andrione 4,493,226, further view of Goodnight 6,457,561, still further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420 as applied to claim 13 above, and in further consideration of Khoo et al. 5,842,420. A combination of the references teach the limitations of the invention as discussed and further the throttle section of Goodnight as applied to primary reference Park teaches: **[claim 19]** a throttle section, as defined by elements 26 and 36, constitutes a lower portion of a cap, as defined by shaft surrounding elements 26 and

36 as shown in figure 14,, that is secured to a lower end of said crankshaft 32, and a suction hole 36 is defined in a bottom end of said cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, and said bottom wall, annular surface surrounding element 36 facing oil pool 24 on the bottom of the shaft section surrounding elements 26 and 36, of said cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, constitutes said bottom wall of said throttle section, as defined by elements 26 and 36; **[claim 20]** and cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, being press-fit in a lower end of a crankshaft 32. A combination of the references as discussed would fail to teach the limitation taught by Khoo including: **[claim 15]** a main section 64 of a crankshaft 30 that constitutes a slant path 62 slanted (β) relative to an axis 61 of the main section of the crankshaft 30 and constituting a centrifugal pump; **[claim 18]** a hollow cylinder 64 (also a main section) has an axis slanting towar an outer wall of a crankshaft 30, as shown in figure 5. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a slanted fluid suction path constituting a centrifugal pump in order to increase the inlet area for picking up more oil from a sump thereby improving the degree of lubrication of the components of the compressor and reducing noise emissions (Khoo – col. 1 ll. 65-67 and col. 2 ll. 1-3).

11. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as obvious over Park et al. US 7,100,743 in view of Andrione 4,493,226, further view of Goodnight 6,457,561, still further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420, as applied to claim 13 above. A combination of Park, Andrione, and

Goodnight teach all the limitations of the invention as discussed above and further Andrione '226 teaches the following limitations including: **[claim 16]** a vent hole 56 provided at an upper section, figure 4, of a centrifugal pump, 20 and 30, opening into a container 10; **[claim 17]** and a vent hole 56 opening through an upper surface, 50 of 22, of the centrifugal pump 18, wherein the upper surface, 50 of 22, faces upward in an axial direction, figure 4, of a crankshaft 18. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a vent hole of a suction chamber within a crankshaft of a compressor in order to allow any gas within oil, which is traversing through a suction path, to be removed outside a zone of a crankshaft (Andrione – col. 3 ll. 2-4).

12. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. US 7,100,743 in view of Goodnight US 6,457,561, further in view of Nobuo et al. JP S62-44108 as evidenced by Khoo et al. US 5,842,420 as applied to claim 1 above, and in further consideration of Khoo et al. 5,842,420. A combination of the references teach the limitations of the invention as discussed and further the throttle section of Goodnight as applied to primary reference Park teaches: **[claim 21]** a throttle section, as defined by elements 26 and 36, constitutes a lower portion of a cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14,, that is secured to a lower end of said crankshaft 32, and a suction hole 36 is defined in a bottom end of said cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, and said bottom wall, annular surface surrounding element 36 facing oil pool 24 on the bottom of the shaft section surrounding elements 26 and 36, of said cap, as defined by

shaft surrounding elements 26 and 36 as shown in figure 14, constitutes said bottom wall of said throttle section, as defined by elements 26 and 36; **[claim 22]** a cap, as defined by shaft surrounding elements 26 and 36 as shown in figure 14, being press-fit in a lower end of a crankshaft 32; **[claim 24]** and a suction hole 36 opens directly between said lubricant oil pooling portion 22 and an interior of said throttle section, as defined by elements 26 and 36, as shown in figure 2. A combination of the references as discussed would fail to teach the limitation taught by Khoo including: **[claim 15]** a main section 64 of a crankshaft 30 that constitutes a slant path 62 slanted (β) relative to an axis 61 of the main section of the crankshaft 30 and constituting a centrifugal pump; (claim 18) a hollow cylinder 64 (also a main section) has an axis slanting toward an outer wall of a crankshaft 30, as shown in figure 5. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a slanted fluid suction path constituting a centrifugal pump in order to increase the inlet area for picking up more oil from a sump thereby improving the degree of lubrication of the components of the compressor and reducing noise emissions (Khoo – col. 1 ll. 65-67 and col. 2 ll. 1-3).

Response to Arguments

13. Applicant's arguments with respect to claims 1, 3-9, and 13-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEONARD J. WEINSTEIN whose telephone number is

(571)272-9961. The examiner can normally be reached on Monday - Thursday 7:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art Unit 3746

/Leonard J Weinstein/
Examiner, Art Unit 3746